

USSR

UDC: 621.374.4(088.8)

ARTEM'YEV, E. T., GUSEV, V. M.

"A Frequency Multiplication Method"

USSR Author's Certificate No 275155, filed 17 Sep 65, published 18 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D62 P)

Translation: A method is proposed for frequency multiplication of a sine waveform by a factor of n . To keep the level of components with the initial frequency low over a wide frequency band, the input sine voltage is raised to a power of n , $n-2$, $n-4$, $n-6$, ... by means of nonlinear conversions, and the output voltages of these converters are added after passing them through wide-band two-terminal pair networks with transfer constants of $(1+Cn^2+Cn^4+Cn^6+\dots)-(Cn^2+2Cn^4+3Cn^6+\dots)-(Cn^4+3Cn^6+\dots)-(Cn^6+\dots)$ respectively,

where $C_n^m = \frac{n!}{(n-m)!m!}$.

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1/3 020 UNCLASSIFIED PROCESSING DATE—30OCT70
TITLE—PHOTOINDUCED TRIPLET SINGLET TRANSFER OF ELECTRONIC EXCITATION
ENERGY IN THE LIQUID PHASE -U-
AUTHOR—(05)—BERENFELD, V.M., CHUMAEVSKIY, YE.V., GRINEV, M.P.,
KURYATNIKOV, YU.I., ARTEMYEV, E.T.
COUNTRY OF INFO—USSR
SOURCE—IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 678-82
DATE PUBLISHED—70
SUBJECT AREAS—CHEMISTRY, PHYSICS
TOPIC TAGS—EXCITATION ENERGY, FLUORESCENCE SPECTRUM, BROMINATED ORGANIC
COMPOUND, ANTHRACENE, LIGHT EXCITATION, AROMATIC HYDROCARBON, ELECTRON
SPIN
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—1999/1895 STEP NO—UR/0048/70/034/003/0678/0682
CIRC ACCESSION NO—AP0123682
UNCLASSIFIED

2/3 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123682

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE LIQ. PHASE TRIPLET, SINGLET ENERGY TRANSFER IS AN INTERMOL. RADIATIONLESS TRANSFER OF ELECTRONIC EXCITATION ENERGY FROM THE TRIPLET LEVEL OF THE DONOR MOL. TO THE SINGLET EXCITATION LEVEL OF THE ACCEPTOR MOL. THIS WAS STUDIED IN THE FLUORESCENCE SPECTRUM OF 9,10-DIBROMOANTHRACENE IN BENZENE, SENSITIZED WITH ACPH, EXCITED WITH LIGHT OF 313 NM AT 20 DEGREES. THE CONC. RANGES OF THE ACCEPTOR AND DONOR WERE 2 TIMES 10⁻⁵ M TO 10⁻³ M AND 10⁻⁵ M TO 10⁻³ M, RESP. THE CONC. EFFECT ON THE QUANTUM YIELD AND ON THE DECAY TIME OF THE FLUORESCENCE WITH PULSED PHOTOEXCITATIONS WERE STUDIED UNDER STEADY STATE AND NON STEADY STATE CONDITIONS, RESP. WITH INCREASED CONC. OF THE ACCEPTOR, THE QUENCHING RATE OF THE AFTERGLOW BECOMES HIGHER. THE QUANTUM YIELD RATIO INCREASES WITH THE ACCEPTOR CONC. APPROACHING A LIMITING VALUE; SIMILAR 0.3 FOR C IS GREATER THAN 3 TIMES 10⁻³ M. BELOW THAT CONC. THE ENERGY TRANSFER IS COMPETITIVE WITH THE SPONTANEOUS DEACTIVATION PROCESS OF THE TRIPLET ACPH MOL. THE PRECESSES OCCURRING IN THE SOLN. UNDER THE ACTION OF LIGHT ARE DISCUSSED. THE RELATIONS FOR THE INTENSITY OF THE FLUORESCENCE VS. TIME ARE DERIVED IN TERMS OF THE LIFETIME OF THE DONOR TRIPLET MOL., τ_{D} , τ_{D} , AS (3 PLUS OR MINUS 10 PERCENT) TIMES 10⁻⁷ SEC. THE VALUE OF THE ENERGY TRANSFER CONST., k_{ET} SUBD. EQUALS (5 PLUS OR MINUS 0.5) TIMES 10¹⁰ L.-MOLE SEC IS CLOSE TO THAT OF THE DIFFUSION CONST. INDICATING THAT THE PROCESS IS A DIFFUSION CONTROLLED ONE. THE STUDY OF THE CONC.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE—30OCT70

IRC ACCESSION NO--AP0123682

ABSTRACT/EXTRACT—DEPENDENCE OF THE QUANTUM YIELD FOR THE SENSITIZED
FLUORESCENCE UNDER STEADY STATE ILLUMINATION GAVE THE RATE CONST. FOR
THE TRIPLET SINGLET ENERGY TRANSFER, $k_{\text{PRIMETS SUBDA}}$ EQUALS 1.5 TIMES 10^9
PRIME $1. - \text{MOLE SEC.}$ THE RATIO $k_{\text{PRIMETS SUBDA}} - k_{\text{PRIMET T SUBDA}}$ IS
APPROXIMATELY EQUAL TO 0.5 INDICATES A HIGH DEGREE OF SPIN ORBITAL
INTERACTION DUE TO THE HALOGEN ATOMS PRESENT IN THE AROMATIC HYDROCARBON
MOL.

UNCLASSIFIED

USSR

UDC: 621.317.33(088.8)

RASTORGUYEV, A. K., ARTEM'YEV, I. A.

"A Device for Noncontact Measurement of the Value of Resistors"

USSR Author's Certificate No 257605, filed 10 Jul 67, published 17 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V348 P)

Translation: A device is proposed for noncontact measurement of the value of resistors. The device contains a converter, stable frequency oscillator, mixer and frequency meter. To improve the sensitivity of the device, the inductive pickup of the converter is equipped with an open magnetic circuit.

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- 105 -

USSR

UDC 576.895.771.095.38:599.323.4

ARTEM'YEV, M. M. and FLEROVA, O. A., Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR

"Scattering of Sandflies From Colonies of Great Gerbils"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 552-556

Abstract: A study was conducted of the flight behavior of two sandfly species, *Phlebotomus papatasi* and *Sergentomyia arpaklensis*, among great gerbil (*Rhombomys opimus* Licht) colonies located on hummocky sands in the Tedzhen region of Turkmenistan, one of the most intensive foci of zoonotic cutaneous leishmaniasis. Gerbils are believed to be the main reservoir of the disease. The flight of *P. papatasi* could be traced only to a distance of 20 m from the center of the colony, where the sandfly population was six times smaller than in the center. Further away the population density remained the same. The flight of *S. arpaklensis* from great gerbil colonies could not be traced, but the population of this species was higher around the abandoned burrows of red-tailed gerbils (*Meriones erythrourus* Gray) and other small animals than in the colonies.

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Acc. Nr.:

AR0106137

ARTEM'YEV

M. YE.

Ref. Code: UR0000

JPRS 49937

Accuracy of GAL-OMPO-2 Gravimeter on Surface Vessel

/From: Moscow, Referativnyy Zhurnal, Geofizika, Svodnyy Tom, No 1, 1970,
IG171-DEP/

The authors evaluated the accuracy of operation of the GAL-OMPO-2 gravimeter during long-term ocean tests. The article describes the method for preparing the instrument for operation, making gravimetric measurements on a surface vessel and processing the observations. The total random observation error is determined, as well as the magnitude of the error dependent only on the gravimeter.

(Abstract: "Evaluation of the Accuracy of the GAL-OMPO-2 Gravimeter Operating on a Surface Vessel," by M. Ye. Artem'yev, E. A. Boyarskiy, V. I. Koren-fel'd, Ye. I. Magnitskaya and V. A. Tulin; Moscow, Morsk. Avtomatizir. Gravimetr i yego Rabota, 1969, pp 141-161)

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Turbine and Engine Design

USSR

UDC 533.697

ARTEM'YEV, N. S., KORZUNOV, Yu. L., MITYUSHKIN, Yu. I.

"Calculation of Flow in a Nozzle Grid With Nonradial Positioning of the Blades"

Tr. Leningr. koorablestroit. in-ta (Works of Leningrad Shipbuilding Institute), 1971, No. 73, pp 3-11 (from RZh-Mekhanika, No 8, Aug 72, Abstract No 8B482)

Translation: The approximation method proposed for calculating flow in an annular grid with a nonradial positioning of the nozzle blades is a development of a method presented in a previous paper (see Artem'yev, N. S. and Mityushkin, Yu. I., Energomashinostroeniye, No. 12, 1967). The method is based on the introduction of approximation relationships in the equations for the meridional lines of flow. The attenuation parameters and losses along the radius are assumed constant in the solution of the problem and the radial gradient of the density is neglected, since this can be ensured by an appropriate inclination of the blades. The shape of the limiting surfaces and the geometry of the nozzle blades are assumed given. Integration of the system of equations obtained under these assumptions is carried out by the Runge-Kutta method. In the first example considered

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ARTEM'YEV, N. S., et al, Tr. Leningr. koorablestroit. in-ta, 1971, No. 73, pp 3-11

the equation of the meridional line is approximated by a cosinusoidal line. It is shown that this solution is applicable only for thin sheet blades. In the case of thick blades it is necessary to take into account the rise in the lines of flow in the input section of the annular nozzle grid which leads to greater curvature of the meridional lines of flow. In the first approximation this is done by an approximation of the equation for the meridional line of flow by a fourth degree polynomial. In the second approximation a fifth degree polynomial is used that ensures accuracy sufficient for practical purposes. 14 ref. A. G. Plotkin.

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- 106 -

USSR

UDC 621.385.6

ARTEM'YEV, V.N.

"Calculation Of Attenuation Factor Of A Ladder Delay System"

V sb. Vopr. elektron.tekhn. (Problems Of Electronic Technology--Collection Of Works), Issue 2, Saratov, Saratov University, 1971, pp 155-166 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A77)

Translation: A calculation of the attenuation factor of a ladder delay system amounts to a determination of two magnitudes: the figure of merit of the elementary unit and the group velocity. The figure of merit of the unit is found by a method which is a combination of the method of multiconductor lines and the method of partial regions. In order to determine the group velocity, the dispersion characteristic is approximated by an analytical function with several value factors which are found by a comparison of the approximating function with the dispersing dependence. The group velocity is determined as a result of differentiation of the function obtained. The calculations conducted make it possible to advance some recommendations with respect to a choice of the dimensions of ladder systems which minimum attenuation for Type O tubes of the millimeter wave band. A.D. *with*

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USSR

UDC 621.385.632

ARTEM'YEV V.N.

"Calculation Of Optimum Geometry Of Millimeter Range TWT Amplifier"

V sb. Vopr.elektron.tekhn. (Problems Of Electronic Technology--Collection Of Works), Issue 2, Saratov, Saratov University, 1971, pp.167-168 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A81)

Translation: A calculation is made of the geometry of a millimeter band TWT with a delay system of the double ladder with troughs [vpadin] type in which an interaction between the electron beam and the microwave field takes place with respect to the +1st spatial harmonic with a cophased symmetrical type of oscillation. The attenuation, dispersion, and coupling resistance during variation of the geometrical parameters are calculated. 6 ref. R.M.

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USSR

UDC: 621.373.42

ARTEM'YEV, S. M., ZYRIN, S. S., RUSAKOV, V. N.

"Qualitative Comparison of Different Multiple-Tank Drift Type Self-Excited Oscillator Circuits From the Standpoint of the Possibility for Stabilization and Frequency Tuning"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics); 1970, 13, No 7, pp 805-816 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D374)

Translation: The results of a steady-state analysis are taken as the basis for giving the characteristics of various multiple-tank drift type self-excited oscillator circuits from the standpoint of stabilization and frequency tuning. Resumé.

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- 124 -

USSR

UDC 621.372.85(088.8)

SOKOLOV, V. V., ARTEMYEV, S. M., NOVOSELETS, V. I.

"Frequency Tuning Device"

USSR Author's Certificate No 259203, Filed 11 Oct 66, Published 17 Apr 70
(from RZh-Radiotekhnika, No. 9, Sep 70, Abstract No 9B154P)

Translation: The proposed frequency tuning device for vacuum volumetric resonators of superhigh frequency electronic devices contains a rod connected to a flexible resonator tuning element, for example, a diaphragm and an adjustment screw used for axial displacement of the rod. In order to improve the vibration resistance of the device, a smooth bushing with an inside thread encompassing the lower part of the two-step screw and attached inside the removable sectional housing is used. The upper part of the screw is turned into the auxiliary bushing equipped with a flange which is installed on the housing of the device. There are two illustrations.

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USSR

UDC 669.187.6

NIKULIN, A. A., ARTEM'YEV, V. D., VOLKHONSKIY, L. A., KLYUYEV, M. M., TOPILIN, V. V., VOLKOV, S. YE., and SHARAPOV, A. A.

"Study of Methods of Acting on Processes of Crystallization of Ingots During Electric Slag Remelting"

Proizvodstvo Chernykh Metallov (Production of Ferrous Metals -- Collection of Works), No 75, Metallurgiya Press, 1970, pp 161-167

Translation: Results are presented from a study of the control of crystallization of an ingot by acting on the drop transfer and hydrodynamic processes in the slag and metal bath by two methods, performed on a laboratory electric slag installation. The methods are remelting of electrodes moving eccentrically relative to the axis of the crystallizer, and remelting of electrodes in a longitudinal constant magnetic field, created by a solenoid wound around the cover of the crystallizer and supplied by a controlled direct current source. 3 figures; 2 tables; 5 biblio. refs.

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USSR

UDC: 621.373.07

ARTEM'YEV, V. G.

"Automatic Phase Control With Respect to the Residue of the Transmitter Carrier Frequency"

V sb. Vopr. elektrosvyazi (Problems of Electrical Communications--collection of works), Kiev, "Tekhnika", 1970, pp 54-58 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D490)

Translation: The author studies problems of phasing error in a device for automatic phase control of a synchronous carrier with respect to the residue of the transmitter carrier frequency in equipment for discrete signal transmission. Formulas are derived for the minimum possible error and for calculating the optimum AFC transmission factor for given signal parameters and a given phase shift. It is shown that mixing of the carrier residue on transmission assures a low error in phasing of a synchronous carrier.. Two illustrations, one table, bibliography of three titles. Resumé.

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USSR

UDC 669.725.4

IZHVANOV, L. A., ARTEM'YEV, V. I., and PANKRATOV, V. I.

"Preparation of Beryllium Iodide"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 109-110

Abstract: Two methods were tested for the preparation of beryllium iodide: the classical method adopted for iodine refinement of zirconium, and a modification of this method with the evacuation of the vapors of iodine and undecomposed iodides, as well as the method of thermal dissociation of polymeric beryllium iodides. In experiments on the thermal dissociation of iodides on an incandescent tungsten filament, a deposit consisting of silicon with 2-5% Be was formed. The temperature of the beryllium turning was varied from room temperature to 700°, and the filament temperature was varied from 650 to 1300°. The following course of the principal process can be suggested: at the turning: $\text{Be} + \text{I}_2 \rightarrow \text{BeI}_2$; on the walls of the glass ampoule, first brought to vacuum, $2\text{BeI}_2 + \text{SiO}_2 \rightarrow 2\text{BeO} + \text{SiI}_4$; and at the filament: $\text{SiI}_4 \rightarrow \text{Si} + 2\text{I}_2$. Attempts to obtain beryllium in a metal apparatus by passing beryllium iodide vapor over an incandescent metal strip were also unsuccessful. The experiment with the filament revealed a gray crystalline deposit about 1 mm thick and weighing 0.1 g. Spectroanalysis showed that the deposit is beryllium contaminated with iron (up to 2%) and with traces of nickel and chromium. This

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USSR

IZHIVANOV, L. A., et al, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 109-110

contamination of beryllium is probably a consequence both of the transport of impurities from the initial metal as well as the reaction of iodides with contaminated material, in spite of the container lining.

2/2

- 11 -

USSR

UDC 539.3

ARTEM'YEV, V. P., YEFREMOV, G. M., ZHIKHAREV, F. K.

"Results of Experimental Studies of Doubly Convex Rectangular Shells of Standard Plane Elements"

V sb. Prostranstv. konstruktssii v Krasnoyarsk. kraye (Three-Dimensional Structures in the Krasnoyarsk Region -- Collection of Works), Krasnoyarsk, 1972, pp 141-154 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V162)

Translation: The structural characteristics and test data for a reinforced concrete model of a shell of positive curvature constructed from standard plane elements are presented. The stress-deformation state of the shell is analyzed as a function of the deformability of the contour structures under the action of uniformly distributed and concentrated loads. Authors' abstract.

1/2 021 UNCLASSIFIED PROCESSING DATE--02JCT70
TITLE--FUNCTIONAL MOBILITY OF GUSTATORY RECEPTORS OF THE TONGUE IN PEPTIC
ULCER -U-
AUTHOR-(03)-BUDYLINA, S.M., ARTEMYEV, YE.N., RUSAKOVA, L.N. A
COUNTRY OF INFO--USSR
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 3, PP 43-45
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--GASTROINTESTINAL SYSTEM, DIGESTIVE DISEASE, LESION, GUSTATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1986/0809 STEP NO--UR/0504/70/042/003/0043/0045
CIRC ACCESSION NO--AP0102771
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102771

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN PATIENTS WITH GASTRIC AND DUODENAL PEPTIC ULCER GUSTATORY SENSITIVITY WAS INVESTIGATED BY THE METHOD OF FUNCTIONAL MOBILITY. IT WAS REVEALED THAT THE LEVEL OF THE FUNCTIONAL MOBILITY OF THE GUSTATORY RECEPTORS OF THE TONGUE IN PEPTIC ULCER IS LOWER THAN THAT IN HEALTHY INDIVIDUALS. ALL THE PATIENTS EXHIBITED A DISORDER OF THE GASTRO LINGUAL REFLEX. IN PEPTIC DUODENAL ULCER THERE ARE THREE TYPES OF REACTIONS TO FOOD. THE TREATMENT CONDUCTED, AS A RULE, RAISES THE ACTIVITY OF THE GUSTATORY RECEPTORS. A REACTION TO FOOD IS RESTORED NOT IN ALL THE PATIENTS. INVESTIGATION OF THE GUSTATORY RECEPTION BY THE METHOD OF FUNCTIONAL MOBILITY MAY SERVE AS AN ADDITIONAL TEST FOR CHARACTERIZATION OF THE CLINICAL PICTURE AND THE COURSE OF PEPTIC ULCER.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--METHOD OF PREPARING SAMPLES FOR STUDY IN THE ELECTRON MICROSCOPE
-U-
AUTHOR--ARTEMYEV, YU.I. *A*
COUNTRY OF INFO--USSR
SOURCE--ZAVOD, LAB., 1970, 36, (1), 48
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--ELECTRON MICROSCOPE, CHROMIUM NICKEL STEEL, METALLOGRAPHY

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0358 STEP NO--UR/0032/70/036/001/0048/0048
CIRC ACCESSION NO--AP0124115

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124115

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN IMPROVED METHOD OF THINNING METALLIC AND OTHER SAMPLES FOR EXAMINATION IN THE ELECTRON MICROSCOPE IS PROPOSED. THE SAMPLE IS PLACED IN A HORIZONTAL POSITION IN ORDER TO AVOID THE ACCUMULATION OF DISSOLUTION PRODUCTS RESULTING FROM THE ACTION OF THE ELECTROLYTE. BY CAREFUL ATTENTION TO THE ORDER OF THE SUBSEQUENT OPERATIONS DISSOLUTION MAY BE EFFICIENTLY CARRIED OUT IN THE PART OF THE SAMPLE WHICH IT IS DESIRED TO THIN. AN EXAMPLE OF THE USE OF THIS METHOD IN THINNING CR, NI STEEL IS PRESENTED.

UNCLASSIFIED

Acc. Nr: AP0051974

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Ref. Code: UA 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i
Meditsiny, 1970, Vol 69, Nr 3, pp 110-112

RESTORATIVE PROCESSES IN RAT OVARIES IN REPEATED RESECTION

N. S. Arteniyeva

Institute of Experimental Biology of the Academy of Medical Sciences
of the USSR, Moscow

In experiments on 100 sexually mature Wistar rats, weighing 150—160 gm, the author studied the restorative processes in repeated resection of regenerating ovary four months after the removal of a half of one ovary in simultaneous removal of the other one. Three months after repeated resection there was noted a significant increase of the weight of the repeatedly resected ovary. Upon histological study there were found, along with restorative processes, also cystic-degenerative alterations of the organ.

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UDC 621.762.001.669

IVENSEN, V. A., EYDUK, O. N., ARTEM'YEVA, S. I., and LUKASHOVA, N. M.

"Plasticity Indicators of Tungsten-Cobalt Hard Alloys As Functions of Temperature of Production of Tungsten and Tungsten Carbide Powders"

Sb. tr. Vses. n.-i. i proyekt. in-t tugoplavk. met. i tverd. splavov
[Collected Works of All-Union Scientific Research and Planning Institute
for Refractory Metals and Hard Alloys], No. 10, 1970, pp. 60-67
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract
No. 2 G414 by the authors)

Translation: The influence of reduction temperature and carbidization temperature during production of W carbide on the plasticity of tungsten-cobalt hard alloy is studied. It is established that increasing the carbidization temperature causes a greater increase in plasticity of the alloy than increasing the temperature of reduction of W oxides. It is demonstrated that the effect observed results primarily from evaporation of impurities and the production of a more perfect lattice of carbide grains at high temperatures of production of the initial powders.
5 tables.

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1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT7
TITLE--ON THE TWO WAYS OF ENSURING THE CONFIDENCE OF PSYCHOLOGICAL
INVESTIGATIONS -U-
AUTHOR-(02)-LURIYA, A.R., ARTEMYeva, YE.IU. A
COUNTRY OF INFO--USSR
SOURCE--VOPROSY PSIKHologii, 1970, NR 3, PP 105-112
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BRAIN, LESION, SYNDROME, PSYCHOPHYSIOLOGY, DIAGNOSTIC MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/1387 STEP NO--UR/0402/70/000/003/0105/0112
CIRC ACCESSION NO--AP0126926
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT71

CIRC ACCESSION NO--AP0126926

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR MANY FIELDS OF RESEARCH THE ACHIEVING OF THE LEVEL OF STATISTICAL CONFIDENCE IS THE CLASSICAL WAY OF OBTAINING CONFIDENT VALUES. HOWEVER, FOR A NUMBER OF FIELDS OF SCIENCE, IN PARTICULAR FOR NEUROPSYCHOLOGY, WHERE THE RESEARCHER HAS TO DO WITH A RELATIVELY SMALL NUMBER OF CASES, SUCH A WAY IS IMPOSSIBLE. THIS DOES NOT, HOWEVER, MEAN THAT IT IS ENTIRELY IMPOSSIBLE TO OBTAIN HERE CONFIDENT VALUES. THE PRESENT PAPER SUBSTANTIATES A POSSIBILITY OF ACHIEVING HIGH CONFIDENCE IN NEUROPSYCHOLOGICAL INVESTIGATIONS BY THE METHOD OF SYNDROME ANALYSIS OF BRAIN LESIONS. THE FULL VALUE OF THIS METHOD IS ENSURED BY THE QUALITATIVE ANALYSIS OF THOSE SYMPTOMES WHICH SHOW MAXIMUM CORRELATION AND ARE NECESSARILY ASSOCIATED WITH ONE ANOTHER. IN THE SECOND PART OF THE PAPER AN ATTEMPT IS MADE TO MAKE FORMAL GROUNDS MORE PRECISE FOR BRINGING THE METHOD OF SYNDROME ANALYSIS NEARER TO THE FACTOR ANALYSIS. FACILITY: FAKUL'TET PSIKHOLOGII MGU, MOSKVA.

UNCLASSIFIED

USSR

UDC 621.43.011:533;621.5:533

REUTOVICH, L. N., SHATS, V. M., ARTMANOVA, V. T., SKOPINA, S. N.

"Hydrodynamics of Submerged Combustion Equipment (Gas Distribution)"

Tr. Leningr. n.-i. i proyekt. in-ta osnovn. khim. prom-sti (Works of the Leningrad Scientific Research and Design Institute of the Basic Chemical Industry), 1972, No. 6, pp 127-132 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B423)

Translation: Results of studies of the degree of uniformity of the distribution of gas flow in a liquid as a function of the gas rate, the area of the useful cross section of the gas distribution device, and the depth of its immersion in the liquid are presented. Authors' abstract.

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Immunology

USSR

UDC 616.981.718-078.7

KAMBARATOV, P. I., KUDELINA, R. I., and ARTISHCHEVA, L. I., Orenburg Medical Institute, Orenburg,; Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, Moscow; and Orenburg Oblast' Sanitary Epidemiological Station

"Use of a Soluble Rickettsia burneti Antigen as Allergen for the Diagnosis of Fresh Cases of Q-Fever in Man"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71, pp17-18

Abstract: It was reported in a preceding paper that soluble antigen prepared according to Bolvin from Rickettsia burneti, phase I, can be used for the retrospective diagnosis of Q-fever in human beings. In the present study this antigen in an amount of 0.1 ml was used in tests on 32 Q-fever patients on the 5th to 24th day of the disease. Beginning with the 5th day of the disease, an allergic reaction was observed upon intracutaneous application of the antigen, that generally reached a maximum 24 hrs after application and subsided within 48 hrs. The antigen did not cause allergic reactions in control patients with other diseases, nor did it cause formation of complement-fixing antibodies. The antigen can be recommended for the diagnosis of recent cases of Q-fever.

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USSR

UDC 621.315.422

GOLIK, L.L., ARTSELEVSKAYA, YE.S., YELINSON, M.I.

"Influence Of Light On The Parameters Of SbSJ Crystals Close To Phase Transition"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1339-1341

Abstract: The effect is studied of light (of excess carriers) on the magnitude ΔT_p , the dielectric constant (ϵ) and the pyrocurrent (I_p) in SbSJ crystals. In addition, the temperature of cleavage [rassloveniye] is compared with the temperature of the maxima of curves $\epsilon(T)$ and $I_p(T)$. The magnitude ϵ was determined with respect to the capacitance of the crystal and was measured by a Ye8-2 bridge (frequency 1 kHz); I_p was recorded with a U1-2 electrometer with a uniform heating of the crystal at the rate of 1-1.2 deg./min. The authors thank V.A. Lyekhovitskaya for furnishing the SbSJ crystals. 2 fig. 10 ref. Received by editors, 22 December 1971.

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Optimization

USSR

UDC 518.1

ARTOBOLVSKIY, I. I., Academician, GENKIN, M. D., GRINKEVICH, V. K., SOBOL', I. M., and STATNIKOV, R. B., State Scientific Research Institute of Mechanical Engineering, Moscow

"Optimization in Machine Theory by LP-Search"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 6, 1971, pp 1287-1290

Abstract: The principal types of optimization problems occurring in machine theory are optimal analysis problems, optimal synthesis problems, and best approximation problems. They are all multiparametric and the use of classical methods of the calculus of variations is, as a rule, impossible. A global search is necessary. An "independent" random search (Monte Carlo method) permits the simultaneous optimization of all criteria that are of interest. The selection of the decision or compromise criterion can be made during the "man-machine" dialogue. Further improvement of the model (if it is required) is possible by using local search methods, which usually converge in the neighborhood of the extremum. The authors suggest that, instead of a random search, its deterministic analog -- an LP-search -- be used. It has led to much

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USSR

ARTOBOLLEVSKIY, I. I., et al., Doklady Akademii Nauk SSSR, Vol 200, No 6, 1971, pp 1287-1290

better results than the random search in a number of complex problems, with the number of samples reduced 2-4 times. The article describes the scheme for the LP-search and considers the example of an oscillatory system with three degrees of freedom, in which it is necessary to find the model with the minimum length and the model with the maximum difference between the first and second natural frequencies subject to restrictions.

2/2

- 137 -

UDC 539.4.10⁴

USSR

ARTROSHCHENKO, E. S., KOSOVICH, V. A., LIPOVATYY, B. N., SEDYKH, V. S., and
SHOROSHOROV, M. KH., Volograd, Moscow

"Features of Plastic Deformation During Explosive Compression of Metal
Powders"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul/Aug 72, pp 113-118

Abstract: Plastic deformation, temperature, and some features of the fine structure were studied in relation to the density and compression parameters, using 100-250 μ iron and titanium powders. It was determined that high-velocity loading leads to a significant heating of the compressed powder due to the adiabatic character of heat exchange between the deformed particles and the surrounding environment.

1/1

USSR

UDC: 533.9...16

ARTSIMOVICH, L. A., editor

"Plasma Accelerators"

Moscow, Plazmennyye uskoriteli (cf. English above), "Mashinostroyeniye", 1973, 312 pp, ill. 3 r. 2 k. (from RZh-Fizika, No 6, Jun 73, abstract No 6G389 K)

Translation: The book deals with general questions of the physics of the process taking place in plasma accelerators, peculiarities of processes in specific types of accelerators and magnetoplasma compressors, methods of diagnosing plasma fluxes, and also questions of using plasma accelerators in thermonuclear research, gas dynamics, space research and technology.

1/1

- 15 -

USSR

ARTSIMOVICH, L. A.

"Electron Thermal Conductivity in a Toroidal Plasma Coil"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 2, 20 Jan 71, pp 101-104

Abstract: A study of the behavior of a plasma in Tokamak devices indicates that the plasma coil possesses anomalously high thermal conductivity. The thermal flux from the plasma in such systems is over an order greater than the value given in estimates based on the neoclassical theory suggested by SAGDEYEV and GALEYEV. Measurements of the thermal energy reserve in a plasma over a wide range of physical parameters were carried out on a Tokamak-3a. On the basis of an analysis of data on the energy balance of the electronic component of the plasma and the electron temperature distribution, the author obtains an expression for the coefficient of thermal conductivity which outwardly resembles the classical formula. The difference between them is that the quan-

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- 47 -

USSR

ARTSIMOVICH, L. A., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 2, 20 Jan 71, pp 101-104

tity $\approx H_e^2$ for the strength of the resulting magnetic field is replaced by H_p^2 and the Coulomb collision frequency is replaced by a "generalized" frequency ν , which is determined from electrical conductivity measurements. In addition, there is a coefficient of 7 - 10, increasing the thermal loss by one more order of magnitude. This coefficient may not be universal, however, but may depend on the geometric parameters of the plasma coil (the ratio a/R).

2/2

Organ and Tissue Transplantation

USSR

UDC 576.097

SHATALOVA, I. N., NASTOYASHCHAYA, N. N., ARTSIMOVICH, N. G., and SERGEL', O. S., Scientific Research Laboratory of Experimental Immunobiology, Academy of Medical Sciences USSR, Moscow

"Changes in the Peripheral Blood of Mice Upon Specific and Combined Suppression of Transplantation Immunity"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 6, 1973, pp 1,450-1,452

Abstract: In experiments in which allotransplantation of skin patches to mice was performed, immunization of the recipients was carried out with unspecific immunosuppressors (antilymphocyte serum and cyclophosphamide) and with a specific antigen (viable cells of the spleen of donor mice). The antilymphocyte serum was obtained by immunizing rabbits with lymphoid cells of the mesenteric lymph nodes of mice. Suppression of the transplantation immunity with the non-specific immunosuppressors (cyclophosphamide alone or in combination with antilymphocyte serum) was accompanied as a rule by leukopenia and particularly lymphocytopenia. On the other hand, induction of immunological tolerance by applying the specific antigen or by treating the recipients with the antigen in combination with the unspecific

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USSR

SHATALOVA, I. N., et al., Doklady Akademii Nauk SSSR, Vol 210, No 6, 1973,
pp 1,450-1,452

immunosuppressors resulted in a marked extension of the time of survival of
the transplanted skin without significant changes in the composition of the
blood.

2/2

- 34 -

USSR

UDC 621.314.632.4

ARTSIS, N.KH., KRICHEVSKIY, M.E.

"Effect Of Frequency Of Sinusoidal Voltage On Operation Of Rectifier Diode"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 3(53), pp 85-92 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 18119)

Translation: A mathematical expression for the loss of the forward half-period is composed on the basis of a continuity equation for a one-dimensional model of a semiconductor diode with an abrupt planar n-p junction. A solution with respect to the parameter ωT (ω = angular frequency; T = effective lifetime of holes) was obtained on a computer. It is established that the power released during the forward half-period at the p-n junction practically does not depend on the frequency of the feed voltage, and the power released in the base of the semiconductor diode is increased in the frequency range from $0.1 \leq \omega T \leq 10$. An expression for the reverse current after passage of the forward current of sinusoidal form is formulated and solved. The phase duration of the high conductivity as a function of ωT and the ratio of the base thickness and the diffusion length of the minority carriers W/L was determined on a computer. It is derived that the amplitude of the reverse currents grows with an increase of ωT

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USSR

ARTSIS, N. Kh., KRICHEVSKIY, M. E., Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory, 1970, Issue 3(55), pp 85-92 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B119)

up to 10 and with an increase of the base thickness up to $W/L = 3$. The magnitude of the amplitude of the reverse current with the given conditions can serve for an evaluation of the parameters of the semiconductor diode (W and τ). 5 ill. 6 ref. A. S.

2/2

- 23 -

USSR

UDC 669.24:539.261:539.292

ARTSISHEVAKAYA, L. F., MALYSHEVA, I. B., and SELISSKIY, YA. P., Institute of Precision Alloys, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Investigation of Ordering Kinetics in Ni-Mo Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 2, Feb 72; pp 377-382

Abstract: The structural features of the ordering process were studied on two Ni-Mo alloys containing 15 and 20.2 at% Mo by electron microscope and x-ray diffraction methods. Ordering in Ni-Mo alloys takes place slowly (up to 100 hours) at annealing temperatures of 700 and 800°C in an alloy of stoichiometric composition, and both ordered and unordered phases can be observed. The change in lattice structure during ordering (formation of the tetragonal phase Ni₃Mo) leads to the development of a complex domain structure including, apart from anti-phase domains, perpendicular twins. The size and shape of the perpendicular twins and domains depend on the annealing temperature. After annealing at 700°C, fine perpendicular twins are formed with a dimension of approximately 50 Å, and in the grain boundaries--regions of the 1/2

- 71 -

USSR

ARTSISHEVAKAYA, L. F., et al., Fizika Metallov i Metallovedeniye, Vol 33,
No 2, Feb 72, pp 377-382

ordered Ni_3Mo phase, twins without the twinning orientation can be observed.
At 800°C the domain structure represents coarse perpendicular twins in the
form of plates inside of which the anti-phase domains are grouped. Four
figures, 5 bibliographic references.

2/2

USSR

UDC: 681.327

ARTSISHEVSKIY, V. V.

"Investigation of the Operation of Magnetic Memory Devices Under Conditions of Interference With the Operation of Electromagnetic Mechanisms in Automatic Telephone Systems"

Moscow, Magnit. elementy avtomatiki i vychisl. tekhn. XIV Vses. soveshch., 1972. Ref. dokl. (Magnetic Elements in Automation and Computer Technology. Fourteenth All-Union Conference, 1972. Abstracts of Papers), 1972, pp 97-99 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 73, abstract No 1B382 by B. K.)

Translation: The paper deals with the operating conditions of a low-speed memory of small capacity (100-200 bits) using ferrite cores in which the control circuits are based on electromagnetic relays. It is pointed out that the high level of interference which arises with operation of the relays requires the development of methods for ensuring normal operation of the memory device. An analysis is made of the process of arcing across opening relay contacts.

An equivalent circuit of a noise generator is proposed which enables

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USSR

ARTSISHEVSKIY, V. V., Magnit. elementy avtomatiki i vychisl. tekhn. XIV
Vses. soveshch., 1972. Ref. dokl., 1972, pp 97-99

calculating the chain of transmission of interference from the relays to the storage unit based on a given core-switching power and the power discharged across the contacts. Steps are enumerated for functional, electrical, and structural protection of the memory and its circuits from the action of interference -- steps which are taken in developing an industrial model of a [magnetic memory] device. Two illustrations, bibliography of three titles.

2/2

- 27 -

USSR

UDC 577.391

ARTSRUNI, G. G., ROMANOV, G. V., KUTUZOV, A. D., and PIRUZYAN, L. A.,
Institute of Chemical Physics, Academy of Sciences USSR, Moscow

"Effect of an Electrostatic Field on the Survival Time of White Nonpurebred Mice After X-Irradiation"

Moscow, Izvestiya Akademii Nauk SSR, Seriya Biologicheskaya, No 3, 1973,
pp 435-438

Abstract: Nonpurebred mice were subjected to whole-body irradiation at 500 r and then placed in a specially designed chamber where they were exposed to an electrostatic field of 1000 v/cm for 1 or 24 hours. More controls were alive 11 days after irradiation than experimental animals, but by day 30 the survival rate of the latter exposed to the electrostatic field for 1 and 24 hours was 27 and 36% higher, respectively. The higher initial mortality is attributed to the early biochemical changes triggered by the electrostatic field. Subsequent intensification of the oxidation-reduction processes prolonged the survival time of the more radioresistant animals.

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1/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--REACTIONS OF ACETYLENIC CHLORIDES WITH HYDRAZINES. V. REACTION OF
4,CHLORO,2,PENTYNE WITH HYDRAZINE -U-
AUTHOR-(03)-IUFFE, B.V., ARTSYBASHEVA, YU.P., LEVINA, L.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 908-11

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIZATION, CHLORINATED ORGANIC COMPOUND, ORGANIC AZO
COMPOUND ALKYNE, HYDRAZINE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3006/1334

STEP NO--UR/0366/70/000/005/0408/0911

CIRC ACCESSION NO--AP0135008

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0135008
ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT: THE TITLE REACTION GAVE LESS THAN
OR EQUAL TO 80PERCENT 3,5,DIMETHYL,DELTA PRIME2, PYRAZOLINE, A SMALL
AMT. OF 3,ETHYL,DELTA PRIME2, PYRAZOLINE, AND TRACES OF MEC(:NNH SUB2)
CH:CHME (1). THE REACTION INVOLVES THE INITIAL FORMATION OF MEC(:NNH
SUB2)C TRIPLE BOND CME, WHICH REARRANGES PREDOMINATELY TO H SUB2
C:CHC(:NNH SUB2) ET AND IN A LESSER DEGREE TO I, THE CYCLIZATION OF
THESE INTERMEDIATES GIVES THE PRODUCTS. FACILITY: Leningrad.
GOS. UNIV., Leningrad, USSR.

UNCLASSIFIED

Welding

USSR

UDC 621.791.052.01:669.295

KOLACHEV, B. A., Doctor of Technical Sciences, MAKONOVA, F. S., Engineer,
ARTSYBASOV, YU. N., Engineer, SHCHEENNIKOVA, A. YE., Engineer, and GORSHKOV,
YU. V., Engineer

"Effect of Expansion and Vacuum Annealing on Residual Stresses in Welded
OT4-1 Alloy Joints"

Moscow, Svarochnoye Proizvodstvo, No 2(460), Feb 73, pp 35-36

Abstract: The effect of expansion and vacuum annealing on residual stresses of the first and second types across the weld seam and over the thickness of the weld seam were investigated on specimens of 2-mm-thick OT4-1 alloy sheet material. The stress distributions are analyzed by reference to diagrams. Tensile stresses of the first type act in the metal of the seam immediately after welding; they are maximum on the initial metal -- seam boundary and they change to compression stresses 6 mm from the seam center. Expansion decreases of the first type, and vacuum annealing eliminates them completely. Residual stresses of the second type on the order of 10 kg/mm^2 , act immediately after welding in the weld joint; the microstresses of the weld joint are only slightly affected by expansion, but they decrease significantly with vacuum annealing. The decrease of residual stresses as a result of expansion and vacuum annealing decreases the tendency of welded joints to develop cracks. Four figures, three bibliographic references.

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USSR

UDC: 621.785.34.061:669.295

KOLACHEV, B. A., GORSHKOV, Yu. V., SHEVCHENKO, V. V., ARTSYBASOV, Yu. N.

"Structure and Properties of OT4 and OT4-1 Alloys Following Vacuum Annealing"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, 1972,
pp 6-10.

Abstract: Removal of hydrogen from a metal by vacuum annealing is the most radical means of preventing hydrogen embrittlement. However, the surface of vacuum-treated metal is quite active and interacts with water vapor even at room temperature. The present article studied the influence of temperature and duration of vacuum annealing on the structure and properties of OT4 and OT4-1 alloys. The chemical composition of the alloys corresponded to the technical conditions. The studies were performed using bars 15 mm in diameter and sheets 1-3 mm thick. It was found that vacuum annealing does decrease hydrogen embrittlement of OT4-1 alloy. Vacuum annealing improves the mechanical characteristics of OT4 alloy tested with stress concentrators, but worsens the mechanical characteristics of OT4-1 alloy under these same conditions. It is recommended that vacuum annealing be performed at 670°C for two hours with subsequent oxidation of the surface of the sheets by allowing air into the system at 300-400°C.

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- 46 -

1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--NEW ISOTOPES FLUORINE 23, FLUORINE 24, NEON 25, AND NEON 26,
PRODUCED IN NUCLEAR REACTIONS WITH HEAVY IONS -U-
AUTHOR-(05)-ARTUKH, A.G., AVDEICHIKOV, V.V., GRIDNEV, G.F., MIKHEEV, V.L.,
VOLKOV, V.Y.
COUNTRY OF INFO--USSR
SOURCE--PHYS. LETT. B 1970, 31(3), 129-30
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--ION BOMBARDMENT, HEAVY NUCLEUS, THORIUM, NEON ISOTOPE, ISOTOPE
SEPARATION, MASS SPECTROSCOPY, PULSE AMPLITUDE, FLUORINE ISOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1982/0675 STEP NO--NE/0000/70/031/003/0129/0130
CIRC ACCESSION NO--AP0052134
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0052134

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BOMBARDING OF A 4.4-MG-CM PRIME2 PRIME232 TH TARGET WITH 174-MEV PRIME22 NE IONS PRODUCED N RICH PRIME23 F, PRIME24 F, PRIME25 NE, AND PRIME26 NE. MAGNETIC RIGIDITY (BR) SPECTROMETRY COMBINED WITH PULSE HEIGHT (DELTA E AND E-DELTA E) ANAL. OF 2-SI DETECTORS DETD. THE MASS AND CHARGE OF THE DETECTED IONS. ISOTOPIC YIELDS WERE DETD. AT BR-B SUBEL R EQUALS 1.159 AND 1.138 AND PRIME22 NE PARTICLE FLUXES OF (9.2 AND 2.3) TIMES 10 PRIME15, RESP.; THE B SUBEL R IS THE MAGNETIC RIGIDITY OF THE ELASTICALLY SCATTERED PRIME22 NE IONS. FACILITY: JOINT INST. NUCL. RES., DUBNA, USSR.

UNCLASSIFIED

USSR

UDC 539.67

ARTYEMENKO, A. G., LEVIN, Yu. N., MASLENNIKOV, E. M., PESIN, M. S., and
POSTNIKOV, V. S.

"Mechanism of Energy Absorption in Diffusion Shape Variation of Impurities
in Binary Alloys"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in
Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 159-163

Abstract: A short description and an experimental verification by the internal
friction method of the energy absorption mechanism in diffusion shape variation
of impurities in binary alloys are presented.

Alloys of Cd-Ge, Zn-Ge, and Bi-Ag eutectic composition systems were
used as impurity-containing alloys. Peaks related to diffusion, occurring
along the impurities boundaries as a result of the onset of an inhomogeneous
stress state during measurements, were obtained on internal friction
amplitude-dependence curves.

The results obtained confirm the theory of the impurities diffusion shape
variation mechanism developed earlier. 2 figures, 6 references.

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- 82 -

Epidemiology

USSR

ZAIROV, K. S., CHICHENIN, P. I., MUHAMMADOV, S. M., PULATOV, YA. G., LI-GVAN-KHYA, INZHEVATOVA, M. V., ARTYKOV, K. A., and SEREDIN, V. G.

"Methods and Tactics to be Applied in Detecting Local Foci of Cholera"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 12, Dec 71, pp 3-7

Abstract: With the appearance of the El Tor variety of cholera, endemic foci of this disease developed in a number of countries in which classical cholera could not take root. The reason for this is the capacity of El Tor vibrios to survive for prolonged periods of time in the human organism and the environment. Local cholera foci came developed in which the circulation of the agent is sustained by a chain of atypical diseases, prolonged carrier state of the vibrios in humans, and possibly transmission of the infection by aquatic organisms. Discovery of the carrier state among persons with diseases of the bile secretion system led A. G. Kikonov (1960) to the conclusion that cholera vibrios may be retained for a long time in the gall bladder. He proved the correctness of this conclusion experimentally. During the recent cholera pandemic, vibrios were detected more frequently in the gall bladder. In cases of El Tor cholera, which is caused by hemolytic varieties of the microorganism, it is advisable to determine the titer of antibacterial with reference to the hemolytic enzymes found in the supernatant liquid of

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USSR

ZAIROV, K. S., et al., Meditsinskiy Zhurnal Uzbekistana, No 12, Dec 71, pp 3-7

of meat broth cultures. The complement fixation reaction, which has been used as an immunological test for cholera in Russia since 1909, has been forgotten for inadequate reasons. The very small amount of cholera vibrios present in the stool of cholera patients and vibrio carriers can be detected by means of suspended antibodies, among which alizarin, indanthrone, and anthragallo antibodies are used most frequently. Concentration of cholera vibrios on membrane filters follows by supplementary cultivation (Ye. V. Shibrikova, 1960, 1962) made it possible to increase greatly the sensitivity of the immunofluorescence method of detection. A. K. Adamov et al (1969) isolated El Tro vibrios from fish caught in rivers of Turkmenia. According to results obtained by the authors of this article, cholera vibrios may be detected in the intestine of fish even when tests on the water in which the fish have been caught are negative. Testing of fish is therefore recommended as a method for the detection of latent foci of cholera in bodies of water.

2/2

Semiconductors and Transistors

USSR

UDC: 53.032.52

ARTYSHEVSKIY, P. P., ZADDE, V. V., ZAYTSEVA, A. K., ZATULOVSKIY, L. M.,
KRAVETSKIY, D. Ya., STREL'TSOVA, V. I., CHAYKIN, P. M., All-Union Scien-
tific Research Institute of Electrothermal Equipment

"Photovoltaic Cells Made From Silicon Crystals With Special Cross Sec-
tional Shapes Grown by the Stepanov Method"

Moscow, Izv. AN SSSR: Ser. Fizicheskaya, Vol 36, No 3, Mar 72, pp 522-524

Abstract: A previously described method (Artyshevskiy, P. P. et al., Izv. AN SSSR: Ser. Fiz., Vol 35, 1971, p 469) was used for growing noncylindrical silicon crystals to be tested in solar batteries. Polycrystal and single crystal specimens of *p*-conductivity with resistivity ranging from 0.1 to 15 $\Omega \cdot \text{cm}$ were grown, cut transversely into thin plates and polished on one face. The *pn* junction was made by phosphorus diffusion. The finished cells had an area of 0.8-1.2 sq. cm. Cells made from polycrystals had higher efficiency than Czochralski cells. The shunt resistance of the polycrystals was high, showing high purity of the semiconductor material. The load characteristics of cells made from single crystals were not as good as those of the polycrystal cells, which was attributed

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USSR

ARTYSHEVSKIY, P. P. et al., IAN SSSR: Ser. Fiz., V 36, 1972, pp 522-524

to the low purity of the single crystal material as evidenced by low shunt resistance. This same index shows that contamination is a random factor rather than being due to the method of crystal growing. On the whole, the results show that photovoltaic cells made from noncylindrical crystal rods are at least as good as cells made from Czochralski crystals.

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- 177 -

USSR

UDC 621.311.001.1

BOLOTOV, V. V., ARTYUGINA, I. M., BURTSEVA, G. Ye., DOLGOV, P. P.

Voprosy teorii i metody proyektirovaniya energeticheskikh sistem (Problems of Theory and Methods of Power System Design), Leningrad, Nauka Press, 1970, 273 pp, ill., 1 r. 20 k. (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Yel72 K)

Translation: Some problems of the theory and methods of technical-economic design of power systems are discussed. Basic attention is concentrated on analysis of the set of problems of modern development of power systems (construction of the power engineering balances, methods of calculating power reserves, development of the power system structure and the intersystem overhead electric power lines, and so on). The book is intended for a broad class of readers. There are 39 illustrations, 37 tables and a 52-entry bibliography.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CHEMOTHERAPY OF PRECANCEROUS PULMONARY DISEASES -U-
AUTHOR--ARTYUKH, G.F. A
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 12-14
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PULMONARY DISEASE, CHEMOTHERAPY, ANTIINFLAMMATORY DRUG,
ORGANIC PHOSPHORUS COMPOUND, ORGANIC SULFUR COMPOUND, AMIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/0955 STEP NO--UR/0475/70/000/003/0012/0014
CIRC ACCESSION NO--AP0102894
UNCLASSIFIED

2/2 013
CIRC ACCESSION NO--AP0102894

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR CONSIDERS JUSTIFIED THE TREATMENT OF CHRONIC INFLAMMATORY PULMONARY DISEASES, IN WHICH ANTIINFLAMMATORY THERAPY HAD PROVED INEFFICIENT, BY MEANS OF SUCH ANTICANCER CHEMOTHERAPEUTIC PREPARATIONS AS THIOTEPA IN COMBINATION WITH ANTIINFLAMMATORY TREATMENT. IT IS CONCLUDED THAT THE PROBLEM OF USING CHEMOTHERAPEUTIC TREATMENT OF CERTAIN PATIENTS WITH CHRONIC INFLAMMATORY PULMONARY DISEASES CONSIDERING THEM AS PRECANCEROUS CONDITIONS NECESSITATES FURTHER INVESTIGATION.

UNCLASSIFIED

USSR

UDC 621.385.6

PAVLOV, O.I., PASKANNIK, V.I., ARTYUKH, I.G.

"Characteristics Of A System Of Combined Resonators With Intermediate Automodulation Of Electron Flow In A Low-Signal Approximation"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 2, pp 11-25 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A17)

Translation: In the case of a system of combined resonators with intermediate automodulation of electron flow, expressions are obtained for computation of the equivalent interaction factor and total electron conductivity. The computed curves are presented. The effect is investigated of the geometry of the system and tuning of the resonator on the characteristics mentioned. The dependence is shown of the equivalent interaction factor and electron conductivity on the magnitude of the space charge parameter. In comparison with known one- and multi-gap resonators, the system described has better modulation properties and a large magnitude of inserted electron conductivity. It is possible to use this system as the bunching section of an electron device. 9 ill. 4 ref. G.B.

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USSR

UDC 536.46:533.6

ARTYUKH, L. Yu., ZAKARIN, E. A., KUBYSHKINA, V. D.

"Plane Laminar Jet of a Fuel-Gas Mixture"

V sb. Prikl. i teor. fizika (Applied and Theoretical Physics -- Collection of Works), No. 3, Alma-Ata, 1972, pp 207-212 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B944)

Translation: A theoretical study of a previously mixed fuel mixture of gases entering a satellite inert flow is described. The mathematical model of the process is a set of equations of the reacting boundary layer. A computer solution is given. Direct and inverse Bunsen burners were obtained. The results are in good agreement with experimental data. It is shown that the distribution of temperature, velocity concentrations and combustion along the line of the flow lies on a universal curve if the coordinate origin is placed at the point of maximum reaction velocity. Fields of isotherms and lines of flow are given. 7 ref. Authors' abstract.

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USSR

UDC 536.46:533.6

ARTYUKH, L. Yu., ZHUMANOVA, T. Zh., LUK'YANOV, A. T.

"Solution of the Problem of Nonstationary Heterogeneous Combustion Considering Heat and Mass Exchange"

V sb. Prikl. i teor. fizika. (Applied and Theoretical Physics -- Collection of Works), No. 3, Alma-Ata, 1972, pp 195-200 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B957)

Translation: The problem of nonstationary heterogeneous combustion of a condensed fuel considering heat and mass exchange on the surface is solved by a finite-difference method. The combustion rate is a function of the temperature determined by the Arrhenius law and has a first order in terms of the oxidizer. The heating is produced by an external heater. The solution is illustrated by graphs of the temperature and concentration of oxidizer at the surface as functions of for different parameters of the problem. An approximate analytical solution is given.

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UDC 532.517.4

USSR

ARTYUKH, L. Yu., KRASIL'NIKOV, T. K., TROFIMENKO, A. T.

"Study of the Microstructure of a Turbulent Stream on a Permeable Surface"

V sb. Prikl. i teor. fizika Vyp. 3 (Applied and Theoretical Physics. No. 3 -- Collection of Works), Alma-Ata, 1972, pp 201-206 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B1057)

Translation: The results of an experimental study of average and pulsation characteristics of a plane turbulent jet propagating along a permeable surface through which there is homogeneous injection or ejection of a gas of varying intensity are presented. It is shown that upon injection (or ejection) of the gas, there occurs a total restructuring of both the average velocity fields and the pulsation velocity profiles. It was established on the basis of thermo-anemometer measurements of the tangential friction stress that the point of zero friction in a transverse cross section of the jet does not coincide with the point of the maximum of the average velocity. The effect of injection and ejection on the transition from a laminar flow regime to a turbulent regime was shown experimentally. 8 ref. Authors' abstract.

1/1

UDC 629.78.015:532.526

USSR

ARTYUKH, L. Yu., KRASIL'NIKOVA, T. K. and TROFIMENKO, A. T.

"Study of a Turbulent Jet on a Penetrable Plate"

Minsk, Teplo- i Massoperenos (Heat and Mass Transfer), Vol 1, 1972, pp 212-218; (Referativnyy Zhurnal, Series 41, No 6, 1972, Abstract No 6.41.169)

Abstract: Transverse input or discharge of matter in a boundary layer is one of the effective methods of influencing the structure of flow and the condition of heat exchange in the boundary layer; it may be used to diminish surface friction, prevent breakaway of flow, secure thermal shielding of surface, etc. The given paper is devoted to an experimental study of the motion of an isothermal jet along a penetrable plate in the presence of homogeneous injection or suction of air across a plate. Given are the design of an experimental apparatus and the results of the experiment. Biblio. 5, illus. 5.

1/1

UDC 691.325.65

USSR

ARTYUKH, YU. N., BAUMS, A. K., and ZAGURSKIY, V. YA., Institute of Electronics and Computer Technology, Academy of Sciences Latvian SSR

"General-Purpose Logic Element"

USSR Authors' Certificate No 309462, Cl. H 03 k 19/00, filed 3 Dec 69, published 7 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B142P)

Translation: The authors propose a logic element for an amplifier shaping circuit that is a transistor stage with a TD connected to the emitter and a feedback shaping transistor in which the amplifier shaping circuit is connected via the current-controlling resistor to a bistable memory element and via a switching diode to a pulse signal source. The one setting inputs in the proposed element contain isolation diodes. A number of high-speed synchronous and asynchronous devices can be constructed on the basis of the proposed circuit, since its output can be loaded on any of the inputs (or set of inputs) of the logic element, including the gating input. The introduction of isolation diodes in the one setting input makes it possible to effect control action with any given signal source and permits switching at will of the logic element inputs. This expands the functional capabilities of the element. Three illustrations.

1/1

- 26 -

USSR

UDC: 621.374.32

A
ARTYUKH, YU. N., GULEVSKIY, E. K., ZAGURSKIY, V. YA., Institute of Electronics and Computer Technology, Academy of Sciences of the Latvian SSR.

"The Dynamic State of a Flipflop with Digital Input Based on Tunnel Diodes and Transistors"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, No 2, 1970, pp 103-108

Abstract: After a brief introduction to the mathematical description of flipflop circuits, a particular circuit is described and its schematic diagram is given. The circuit involves two diodes, two tunnel diodes, and three transistors. The threshold apparatus is a diode resistive impulse voltage comparison element, loaded on an amplifier discriminator. The discriminator is a delay relaxer with a reactive transistor as energy accumulator.

The circuit is described in mathematical terms, showing that the threshold of operation to place the flipflop in the 1 state is equal to the operational charge accumulated, while to place it in the 0 state, it is equal to this charge minus the integral value of the input current over one cycle.

The circuit was constructed and tested experimentally, and was also simulated on a digital computer. Parasitic inductive parameters were not considered in the analysis. The results of the simulation were reasonably close

1/3

USSR

ARTYUKH, YU. N, et al, Izvestiya Akademii Nauk Latviyskoy SSR, No 2, 1970,
pp 103-108

to the experimental values.

The authors draw the following conclusions:

- 1) The inertia necessary in a signal discrimination circuit for a counter input flipflop is provided by the accumulation and discharge of charges in the base of a diode in the comparison circuit and by the modulation of the operational threshold value of the relaxer; appropriate choice of circuit parameters makes the circuit operational over a wide range of input impulse frequencies;
- 2) Characteristics of relaxer operation in the circuit considered ensure a small delay of the output signal (on the order of a few nanoseconds) and its standardization in amplitude and duration;
- 3) The use of a transistor as an inverting input bypass element on the 0 setting of the flipflop ensures the necessary coordination of the timing states in the circuit without significantly worsening its frequency characteristics;

2/3

- 42 -

USSR

ARTYUKH, YU. N., et al, Izvestiya Akademii Nauk Latviyskoy SSR, No 2, 1970,
pp 103-108

4) The utilization of well known digital models of PP elements, as described by Ashar, Ghach, Aldridge, and Patterson in the IBM Journal of Research and Development, Volume 7, No. 3, 1963, for a large signal is satisfactory for a qualitative investigation of transient processes in the circuit, but does not provide the necessary accuracy for quantitative evaluation;

5) The speed of operation of the circuit is basically determined by the characteristics of the PP elements used; using a type 1T308, the limiting frequency of flipflop operation in a binary multiposition counter is 70 megahertz, while with a type 1T313 this frequency limit could be approximately doubled.

There are four references, two Soviet and two American.

5214

3/3

USSR

ARTYUKHIN, A. V.

"Some Applications of Parametric Piecewise-Linear Programming"

Vekotoryye Mat. Metody Optimiz. i Ikh Primeneniye v Nar. Kh-ve Kirgizii.
[Some Mathematical Methods of Optimization and Their Application in the
Economy of Kirgizia -- Collection of Works], Frunze, Ilim Press, 1973, pp
37-54 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973,
Abstract No 9V536).

Translation: A method is suggested for solution of special problems of piecewise-linear programming (transport and distribution problems, etc.) with one additional limitation of general form. The solution of the problem is sought by analysis of the similar special PDLP model. The method suggested is a generalization of a similar algorithm in linear programming. An example of the transport problem of DLP with one supplementary general condition is solved.

1/1

- 51 -

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CONFIGURATION AND REACTIVITY OF SATURATED CYCLIC AND HETEROCYCLIC
COMPOUNDS -U-
AUTHOR--(05)-LYUTS, A.YE., AGASHKIN, D.V., ARTYUKHIN, V.I., SOKOLOV, D.V.,
LITVINENKO, G.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(1), 74-81
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MASS SPECTRUM, BENZENE DERIVATIVE, QUINOLINE, AMINE, AMIDE,
CONJUGATE BOND SYSTEM, ISOMER, IONIZATION POTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1984/1660

STEP NO--UR/0360/70/020/001/0074/0031

CIRC ACCESSION NO--AP0100264

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100264

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MASS SPECTRA OF 4 ISOMERS OF 1 BENZOYL, 2 METHYLDECAHYDROQUINOLINE AT IONIZATION VOLTAGES OF 20 AND 70 V WERE OBTAINED. THE DISTRIBUTION OF POS. CHARGE BETWEEN N AND FRAGMENTS CONTG. BENZOYL IS AFFECTED BY THE STRUCTURE AND CONFIGURATION OF THE MOL. IN THE CASE OF ISOLATED BENZOYL AND AMINO GROUPS, POS. IONS CONTG. N PREVAILED. IN THE CASE OF AMIDES, THE POS. CHARGE WAS LOCALIZED IN FRAGMENTS CONTG. C SUB6 H SUB6 AND THE DEGREE OF LOCALIZATION INCREASED WITH INCREASED EFFICIENCY OF CONJUGATION.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF CITRIC ACID ON THE EXCHANGE BY RARE EARTH IONS BETWEEN A
CATION EXCHANGER AND A SOLUTION OF ETHYLENEDIAMINETETRAACETIC ACID, EDTA
AUTHOR--(03)--MARTYNNENKO, L.I., SPITSYN, V.I., ARTYUKHINA, G.A.

COUNTRY OF INFO--USSR

SOURCE--Zh. NEORG. KHIM. 1970, 15(4), 931-4

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CITRIC ACID, RARE EARTH METAL, CATION EXCHANGE RESIN,
NEODYMIUM, PRASEODYMIUM, HULMIUM/(U)KUZ CATION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/2018

STEP NO--UR/0078/70/015/004/0931/0934

CIRC ACCESSION NO--AP0132279

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132279

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISTRIBUTION COEFFS. (ALPHA) FOR ND-PR AND ER-HO MIXTS. WERE DETD. IN A SYSTEM OF CATION EXCHANGE RESIN KU-2 WITH EDTA, CITRIC ACID (H SUB3 CIT), OR THEIR MIXTS. IN THE PRESENCE OF H SUB3 CIT, THE VALUE OF ALPHA REACHES ITS HIGHEST (EQUIL.) VALUE VERY QUICKLY. IN EDTA SOLN., THE EQUIL. WAS REACHED MORE SLOWLY. FAVORABLE DIFFUSIONAL PROPERTIES OF CITRATES ARE RESPONSIBLE FOR FASTER ACHIEVEMENT OF EQUIL. IN H SUB3 CIT THAN IN EDTA SOLNS. IT IS ASSUMED THAT, IN EDTA-H SUB3 CIT AND IN H SUB3 CIT SOLNS., THE RATE DETG. STEP IS THE SAME AND IT INVOLVES PENETRATION OF NEUTRAL COMPLEXES (WHICH FORM AT PH3-3.2) INTO THE RESIN. FACILITY: MOSK. GOS. UNIV. IM. LOMGNOGOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SPECTROGRAPHIC STUDY OF NEODYMIUM CITRATES IN AN AQUEOUS SOLUTION
-U-
AUTHOR--(03)-ARTYUKHINA, G.A., MARTYENKO, L.I., SPITSYN, V.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 522-5
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NEODYMIUM COMPOUND, CITRIC ACID, SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1510

STEP NO--UR/0062/70/000/003/0522/0525

CIRC ACCESSION NO--4P0120291

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120291

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROGRAPHIC AND POTENTIOMETRIC DATA WERE USED TO REVEAL 2 FORMS OF CITRATES OF COMPN. ND(CIT), ND(CIT) SUB2 PRIME3 NEGATIVE AND ND SUB3 (CIT) SUB3 (OH) SUB4 PRIME4 NEGATIVE IN TITRN. OF NDCL SUB3 WITH CITRIC ACID (H SUB3 CIT). THE MONOCITRATE HAS A STABILITY CONST. THAT RANGES FROM 1.13 TIMES 10 PRIME8 TO 0.67 TIMES 10 PRIME8 WHEN THE CONC. OF NDCL SUB3 IS VARIED FROM 0.03M TO 0.005M.

FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC:539.4

KONOPLENKO, V. P., ARTYUKHINA, L. L., OVSEPYAN, Ye. S., VINOGRADOVA, V. S.,
Moscow

"The Level of Equicohesive Temperature of VM-1A Molybdenum Alloy Upon
Short-Term Testing in a Vacuum"

Kiev, Problemy Prochnosti, No. 10, Oct 73, pp 51-55

Abstract: It is established that the equicohesive temperature of VM-1A alloy in a vacuum of $5 \cdot 10^{-4}$ or $5 \cdot 10^{-5}$ mm Hg is approximately 1250° C and increases both as a result of preliminary triple washing of the chamber with argon (to about 1450° C) and as a result of protection of the surface of specimens with a heat-resistant coating (to over 1500° C). The level of the equicohesive temperature of the alloy results from the rate of development of surface microscopic cracks which develop at points of separation of hard and brittle oxygen-containing phases on grain-boundary surfaces, which are enriched with residual oxygen during high-temperature testing.

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USSR

UDC: 621.374.32

ARTYUKHOV, V. G., DENBNOVETSKIY, S. V., and SIGORSKIY, V. P.

"Multifunctional Counting Device Using Pulse-Position, Multistable Elements"

Novosibirsk, Avtometriya, No 5, 1971, pp 57-67

Abstract: This article is partially based on an earlier article, in which the second and third above-named authors participated (S. V. Denbnovskiy, et al, Zapominayushchiye mnogofunktsional'nyye ostsillografy (Multifunctional Memory Oscillographs) Izmeritel'naya tekhnika, No 1, 1968). The earlier article discussed the structure of multifunctional devices for performing a set of measurements; the present article discusses the basic theory of such a device using digital equipment based on the direct count of pulses. The basic element of such a multifunctional counting device is a decade counting cell fulfilling such functions as pulse counting, frequency division of signal trains, and intermediate memorization. Schematics of two such circuits are given together with various block diagrams showing combinations of such circuits for performing various functions. A final block diagram of the entire instrument is provided. Miniaturization of the equipment is also discussed.

1/1

- 84 -

USSR

UDC: 621.316.71-503.53:621.317.373

ARTYUKHOV, Ye. A., ELINSON, L. S., LUSKANOV, M. P., YURKOV, V. A.

"A Method of Tuning a Phase Shifter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, 1970, Author's Certificate No 273267, filed 13 Jan 69, p 49

Abstract: This author's certificate introduces: 1. A method of tuning a phase shifter based on comparing a given phase shift with the phase displacement of the phase shifter to be tuned in a phase tracking system with a pickup, an actuating motor and two communications channels with phase shifter-receiver, resistor-capacitor and resistor-inductor circuits in one of them. As a distinguishing feature of the patent, accuracy monitoring is simplified by setting the pickup shaft in a position in which the voltage across the series-connected rotor windings of the phase shifter is a minimum, then reversing the stator windings of the phase shifter while simultaneously changing the direction of the voltage in one channel by an angle of $+45^{\circ}$, and in the other by an angle of -45° , and adjusting the resistor-capacitor circuit of the phase shifter to reduce the difference in the position of the actuating motor shaft to zero. After this the pickup shaft is set in a position which minimizes the voltage across the windings of the phase shifter and the stator windings are reversed while simultaneously changing the

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USSR

ARTYUKHOV, Ye. A., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, 1970

phase displacement of the voltages in the channels and fixing the difference in the actuating motor shaft position. This difference is reduced to half by adjusting the resistor-capacitor circuit of the phase shifter, and reduced to zero by adjusting the phase shifting circuit in the channel without a phase shifter. 2. A modification of this method with the distinguishing feature that the pickup shaft is set in a position where the voltage across one of the rotor windings of the phase shifter is minimized, the stator windings of the phase shifter are reversed while simultaneously changing the phase displacement of the voltages in the channels, and the resistor-inductor circuit of the phase shifter is adjusted to reduce the change in position of the actuating motor shaft to zero.

2/2

- 113 -

USSR

UDC 624.131.542:628.247

ARTYUKOV, YE. I., GRUZINOV, V. V., MALKOVSKIY, O. N.

"Settling of the Ground Surface and Building Foundations in Sewer Tunnel Construction"

Moscow, Osnovaniya, fundamenty i mekhanika gruntov, No. 5, 1971, pp 23-24

Abstract: Data on the character and magnitude of surface settling and its effect on foundations of existing buildings obtained from actual observations and laboratory studies on models are presented. It is noted that in the majority of large cities in the Soviet Union sewers are laid by the closed method, making it possible to conduct work without damaging streets, disrupting traffic, and removing buildings. The tunnels in Leningrad are at a depth of 8-15 m in Quaternary strata. Over sections of a considerable extent there is contact of two types of rocks with different properties and under these conditions the slightest disruption in their equilibrium effects the propagation of deformations over the entire massif up to the surface of the earth. It is shown that geological conditions in the vicinity of underground sewers and the degree of nonuniformity in the settling of the earth's surface have a considerable effect on the degree of deformation of foundations. The degree of deformation of the foundations of buildings

1/2

USSR

ARTYUKOV, YE. I., et al, Osnovaniya, fundamenty i mekhanika gruntov, No. 5, 1971, pp 23-24

depends on the magnitude and nonuniformity of the settling of the surface and the position of the building in a trough. Foundations located at a distance $0.5 H_T$ from the axis of a tunnel, where H_T is the depth of the tunnel, are shown to be under the most unfavorable conditions. The characteristic form of building deformation is vertical cracks throughout the entire structure that open as much as 40 mm and an inclination of the building walls toward the sewer working. The authors feel that these results make it possible for builders and designers to establish a zone for the development of settling on the earth's surface before beginning underground work and to anticipate required safety measures.

2/2

57.

A
USSR

ARUTYUNOV, A.

"Modern Neurosurgery"

Moscow, Moskovskaya Pravda, 25 July 70, p 4

Abstract: In a press interview, Aleksandr Arutyunov, Director of the Burdenko Institute of Neurosurgery, USSR Academy of Medical Sciences, discusses very briefly the main trends in the Institute's research - brain injuries and tumors. Considerable attention is focused on the causes, diagnosis, course, and treatment of vascular pathology, particularly hemorrhages caused by rupture of aneurysms. The mortality rate from cerebral circulatory disorders has been sharply lowered through improved surgical techniques, drugs, and new diagnostic methods. A well-equipped operating room, which is a combination of physiology laboratory and X-ray room, is a major factor in the Institute's success. Regarding brain tumors, diagnosis has improved greatly. The prognosis for malignant tumors remains poor, while that for benign tumors has brightened considerably since new anesthetics and new surgical techniques now make operable tumors at the base of the brain that formerly would be considered inaccessible.

1/1

UDC 681.327.11

USSR

ARTYUNOV, M. G., and KUZNETSOV, Yu. K.

"Technique for the Multicolor Ferrographic Recording of Information"

USSR Authors' Certificate No 341058, Cl. G 06k 15/14, filed 4 Nov 70, published 5 Jun 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 18, 5 Jun 72, p 187)

Abstract: To improve the image quality: information associated with various colors, alternating arbitrarily, is recorded on a magnetic medium by the signals of one level; the color components of the information are isolated by the consecutive development of the latent magnetic image by colored developers; and before each subsequent development the preceding developer is removed from the latent magnetic information image.

1/1

- 65 -

Optimization

EAST GERMANY/ USSR

SVECHARNIK D.V., ARTYUNOV O.S., Dr., All-Soviet Scientific-Research Engineering Society of the Instrument Industry (VNITOPribor), Moscow.

"Optimal Process Control Based on the Evaluation of Statistical Data by the Nominal-Optimum Method"

Berlin, Messen-Steuern-Regeln, Vol 13, No 12, December 1970, pp 448-451.

Abstract: The article describes the application of the nominal-optimum method, by which algorithms for an optimal process control can be found from statistical data, to the problem of achieving a maximum economic gain in a production plant from known quality and cost distribution curves. The gist of the method is to appropriately shift the target value with respect to the center value of the tolerance range. It is illustrated on the simplest case, where one-dimensional optimization is required for a process with a single variable parameter. The analysis is carried out in the most general terms and then is illustrated on two specific examples: a rolling mill and a lathe operation. In both cases the product quality parameter has an asymmetrical normal distribution while the cost distribution is symmetrical. The solution of multivariate and otherwise more complex optimization problems by the same method is also discussed. Three bibl. ref. are listed: all Russian (one by the first of above authors). Manuscript date not given.

1/1

USSR

UDC: 8.74

ARUTYUNOV, A. M., BARDUGIMEOSYAN, R. B.

"Input Devices for the Specialized 'Garni' Computer"

Tr. Vychisl. tsentra AN ArmSSR i Yerevan. un-ta (Works of the Computing Center of the Academy of Sciences of the Armenian SSR and Yerevan University), 1972, 7, pp 140-153 (from RZh-Kiber-netika, No 10, Oct 72, abstract No 10V619 [authors' abstract])

Translation: The paper describes magnetic tape input devices designed for input of sentences and a "dictionary". A method is given for constructing an automaton which generates certain input sequences.

1/1

Pharmacology and Toxicology

USSR

UDC 591.1.15

MOVSEYAN, M. A., BARKHUDARYAN, L. Kh., ARUTYUNYAN, D. Ye., and MELIK-MKRTCHYAN, L. N.

"Glycogen Concentration Changes in the Heart Muscle of Irradiated Rats"

V sb. Materialy 3 Zakavkaz. nauch. konf. patofiziologov, 1972 (Collection of Papers Presented at Third Transcaucasian Scientific Conference of Patho-physiologists, 1972), Tbilisi, 1972, pp 151-152 (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, Otdel'nyy Vypusk, No 2, 1973, Abstract No 2F1335 by V. M. Podval'naya)

Translation: Comparatively small doses of ionizing radiation cause a stress reaction, along with its specific effect. When radiation sickness is very light or light, the glycogen concentration in the heart muscle is the protective reaction of the animal organism and constitutes a part of the general adaptation syndrome. Adrenergic structures in the hypothalamus hypophysis-adrenal cortex system represent the necessary link without which the activation of this system is impossible.

1/1

Antennas

USSR

UDC 621.378.9:778.34:621.396.67.095.3

GERUNI, P. M. and ARUTYUNYAN, D. S.

"Using Radioholography in Antenna Measurements"

Moscow, Izmeritel'naya tekhnika, No 2, 1972, p 90

Abstract: The authors of this brief communication propose a method of radioastronomical antenna measurement in which the amplitude and phase distributions of the field close to the antenna are measured in the far zone, with the obtained data then processed and computed by modeling the field in the optical range. To do this, a radiohologram of the field is obtained in the plane of the antenna gap and is transformed into an optical hologram. Upon restoration of the field in the far zone, the Fourier transform is easily taken by using a long-focus lens. The results of measurements of the field made by the authors are given, together with a block diagram of the equipment and an explanation of its operation. The antenna under measurement had a parabolic reflector with a diameter of 50 cm, operating in the millimeter range.

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USSR

UDC 542.91 + 547.857

A
ARUTYUNYAN, E. A., GUNAR, V. I., and ZAV'YALOV, S. I., Institute of Organic Chemistry imeni N. D. Zelinskiy, Moscow, Academy of Sciences USSR

"New Synthesis Method for 6-Aminopurines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 953-955

Abstract: A new synthesis of 6-aminopurines was developed by direct amination of hypoxanthine (I) or its derivatives with phosphoric acid amides. For example, (I) heated with $O:P(NH_2)_2OC_6H_5$ at 235° gave adenine, m.p. $> 300^\circ C$; (I) heated with $O:P(NHCH_2C_6H_5)_3$ at $230-235^\circ$ gave 6-benzylaminopurine, m.p. $205-206^\circ$; 9-benzylhypoxanthine (II) heated with $O:P(N(CH_3)_2)_3$ at $200-225^\circ$ gave 6-dimethylamino-9-benzylpurine, m.p. $127-129^\circ$; (II) heated with $O:P(NHC_6H_5)_3$ at $220-235^\circ$ gave 6-anilino-9-benzylpurine, m.p. $180-182^\circ$; and finally xanthene heated with $O:P(N(CH_3)_2)_3$ gave 2,6-bis-(dimethylamino)-purine, m.p. $233-237^\circ$.

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- 27 -

USSR

UDC 542.91 + 547.854.4

A
ARUTYUNYAN, E. A., GUNAR, V. I., and ZAV'YALOV, S. I., Institute of Organic Chemistry imeni N. D. Zelinskiy, Moscow, Academy of Sciences USSR

"Peculiarities of the Reaction of Uracils and Phosphoric Acid Amides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 904-909

Abstract: The authors studied conditions for direct amination of uracyl and related structures with phosphoric acid amides. The reaction gives high yields of 2,4-diaminopyrimidines when it is carried out at 215-240° for 10-90 min in the presence of traces of acids. Amine hydrochlorides and POCl₃ may be used as catalysts. Uracils unsubstituted at the nitrogen atom, 2,6-dimethyl-4-hydroxypyrimidine, and hypoxanthine give smoothest reactions with O:P(NR₂)₃(I). The amides of phosphoric acid may vary in their alkyl substituents. The authors believe that the reaction of (I) with the amide function occurs as a 1,2-addition through a four center intermediate structure. The authors thank V. A. KORENEVSKIY for his spectrum research.

1/1

USSR

ARUTYUNYAN, G. A., GRIGORIN, L. Z., SEROVA, G. A.

"One Physiological Model"

Sb. tr. Zangezursk. lab. Adaptivn. Sistem AN Arm SSSR [Collected Works of the Zangezursk Laboratory of Adaptive Systems, Acad. Sci. ArmSSR (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V880).

Translation: The mechanism of the physiological theorem outlined in a number of works has no generally accepted quantitative description. The present work presents a description and study of a model which quantitatively describes known, experimental data.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--THE CONNECTION BETWEEN THE FORCE OF IMPACT AND THE CHARACTER OF
CHANGES IN CUTTING FORCES DURING PLANING -U-
AUTHOR--KASYAN, M.V., ARUTYUNYAN, G.A., BAGDASARYAN, G.B. A
COUNTRY OF INFO--USSR
SOURCE--YEREVAN, IZVESTIYA AKADEMII NAUK ARMYANSKOY SSSR, SERIYA
TEKHNICHESKIKH NAUK, VOL 23, NO 1, 1970, PP 3-10
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CUTTING TOOL, BIBLIOGRAPHY, METAL CUTTING, METAL MACHINING,
PLANING MACHINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1671

STEP NO--UR/0173/70/023/001/0003/0010

CIRC ACCESSION NO--AP0104893

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104893

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE PHYSICAL NATURE OF THE CHANGE IN COMPONENTS OF CUTTING FORCE DURING PLANING IN CONNECTION WITH THE FORCE OF IMPACT. RATED AND EXPERIMENTAL VALUES OF THE IMPACT FORCE UPON INCISION OF THE CUTTING TOOL ONTO MACHINED METAL ARE OBTAINED. IT WAS ESTABLISHED THAT, BEGINNING FROM DEFINITE VALUES OF THE SPEED OF CUTTING, BECAUSE OF THE IMPACT OF CUTTING TOOL UPON MACHINED METAL, NOTICEABLE TRACES OF WEAR RESEMBLING WEAR CHAMFERING ARE FORMED ON THE BACK SURFACE OF THE CUTTING TOOL. AS A RESULT, FORCES ACTING ON THE BACK SURFACE OF THE CUTTING TOOL INCREASE AND THEREBY AUGMENT COMPONENTS OF THE CUTTING FORCE. TWO TABLES.

UNCLASSIFIED

USSR

UDC 533.6.011.72

ARUTYUNYAN, G. M.

"Calculation of Pressure at the Critical Point During the Incidence of a Shock Wave Upon a Body Moving at Supersonic Speed"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov-Dec 72, pp 94-101

Abstract: In an investigation of the interaction of a shockwave with a blunt body traveling at supersonic speed, it is shown that when certain conditions are fulfilled, the pressure of primary reflection at the critical point of a blunt body can be determined on the basis of one-dimensional shock-wave theory, i.e., with the assumption that the discontinuity surfaces are everywhere flat, and that the parameters of the gas behind these surfaces are constant. Errors originating from the application of this theory are discussed. Relationships are obtained for the value of the maximum error at asymptotically large Mach-number of the nonturbulent incident mainstream. Conditions are analyzed, at which secondary reflections of shock waves are possible at the critical point. 5 figures, 8 references.

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USSR

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1/1

- 12 -

USSR

UDC 615.21:547.824

NIKITSKAYA, Ye. S., LEVKOYEVA, Ye. I., ARTYUNYAN, G. S., VLASOVA, T. F.,
MASHKOVSKIY, M. D. and YAKHONTOV, L. N., All-Union Scientific Research
Chemical-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"The Synthesis and Pharmacological Study of 1-Dialkylaminoalkyl-2,5-Dimethyl-
piperidole-4-Esters"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 12, Dec 73, pp 3-6

Abstract: Twelve 1-dialkylaminoalkyl-2,5-dimethylpiperidole-4-esters were
synthesized from 2,5-dimethylpiperidone by acylation with chloracetic or beta-
bromopropionic anhydride, reaction with dimethylamine or diethylamine
reduction with lithium aluminum hydride, and acylation with acetic, benzoic
or 3,4-5-trimethoxybenzoic acid. Water soluble salts were formed with D-
tartaric acid for convenience in pharmacological studies. The stereo-
chemistry of the starting material and one of the simplest intermediates was
checked by proton magnetic resonance. The compounds showed no analgesic
effect on mice or rats. Small doses in narcotized cats gave a small, short-
term hypotensive effect, while larger doses were toxic. No cholinolytic
action was found in isolated rabbit ears or intestinal sections.

1/1

- 55 -

USSR

UDC 539.376+532.135

ARTYUNYAN, N. Kh.

"Creep of Aging Materials. Creep of Concrete"

V sb. Mekh. v SSSR za 50 let. T. 3 (Mechanics in the USSR for 50 Years. Vol. 3 — Collection of Works), Moscow, "Nauka", 1972, pp 150-202 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V533)

Translation: This is a survey article consisting of three parts: experimental studies of the creep of concrete, the theory of the creep of concrete, and contact problems in the theory of creep. The first part discusses problems associated with the creep of concrete under compression and tension. Studies are presented showing the effect of the age of concrete and the duration of the load and the nonlinearity and rate of deformation on the creep process. Studies concerning the effect of anisotropy on the creep of concrete are briefly described. Particular attention is given to papers concerning the creep of concrete under time-variable stresses and under secondary and vibrational loads. The applicability of the principle of the application of effects to creep deformations is discussed. Experimental data on vibrocreep obtained under various cyclic regimes are discussed. The second part describes and

1/3

USSR

ARTUNYAN, N. Kh., Mekh. v SSSR za 50 let. T. 3, Moscow, "Nauka", 1972, pp 150-202

analyzes various physical relationships between stresses and deformations obtained in a phenomenological approach to the development of the theory of creep for concrete. Differential-operator relationships are discussed that correspond to rheological models, particularly the equation for a standard linear body, and their potentialities and shortcomings in describing the rheological behavior of concrete are discussed. Linear physical equations are classified that contain linear integral operators with closed cycle nuclei and their range of applicability in studying the creep of slowly aging concrete is discussed. Two types of nonlinear integral equations for the hereditary theory of creep are considered: when the nonlinearity is caused by the dependence of the instantaneous modulus on the deformation and when the nonlinearity appears in the dependence of relaxation time on stress. Much space is given to the hereditary theory of creep. Discussed here are integral equations with variable creep moduli and with invariable creep measures with respect to time calculations. Various forms of creep measures are analyzed. Various applications of aging theory and the extension of this theory to the nonlinear region are analyzed. The third part considers plane and three-dimensional contact problems of creep theory. The corresponding integral equations are given and

2/3

USSR

ARTYUNYAN, N. Kh., Mekh. v SSSR za 50 let. T.3, "Nauka, 1972, pp 150-202

the possibility of their separation into coordinate and time equations of the Fredholm and Volterra type, respectively, are given. The contact problem is also discussed in the nonlinear formulation. Also discussed are problems concerned with calculating creep of foundations which arise in the solution of contact problems. M. I. Rozovskiy.

3/3

USSR

UDC: 539.3

ARUTYUNYAN, N. KH. and MKHITARYAN, S.M., Yerevan

"Some Contact Problems for a Semi-Plane With Elastic Stiffeners"

Moscow, Prikladnaya Matematika i Mekhanika, Vol 36, Vyp 5, 1972,
pp 770-787

Abstract: A new method is proposed in this article for solving space contact problems of a semi-plane reinforced by elastic stiffeners of small cross-section. The cases of an infinite, semi-infinite and finite length stiffeners are analyzed. With the proposed method the solution of these problems amounts to the solution of integral-differential equations with full elliptical integrals of first and second kind and with defined boundary conditions. An effective method of solving these equations is proposed.

1/1

- 134 -